REMARKS

The Applicants originally filed Claims 1-20. Claims 15-19 were reintroduced in the present application. The Applicants previously added new Claims 21-30 and have presently amended Claims 15, 24, and 25. Accordingly, Claims 15-19 and 21-30 are currently pending in the present application.

I. Rejection of Claims 15, 17-18, 21-24 and 27-28 under 35 U.S.C. §102

These claims are rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,458,656 to Park, et al. ("Park"). However, Park fails to anticipate these claims for the following reasons.

Park fails to teach a halo implant that follows at least a portion of a contour of the hardmask, wherein the thickness of the hardmask varies across the gate structure and terminates at a periphery of the gate structure. Park is directed to a process of fabricating a two bit EEPROM device that uses an ONO layer and a photoresist to implant p-type regions into the substrate. (Column 3, lines 49-64). The ONO layer is first patterned with a photoresist and an n-type region is implanted into the substrate through the opening. Following this implantation step, the photoresist that was used to pattern the ONO layer is then subjected to a flow operation that rounds the corners of the photoresist. An angled p-type implantation process is then conducted through the same opening used to form the n-type region to form p-type regions near the edges of the ONO layer. (Column 6, lines 20-66).

Park fails to teach several aspects of the presently claimed inventions. First, the contour of the resulting p-type implant does not follow at least a portion of the hardmask. To the contrary, the contour of the p-type implant is opposite that of the contour of the photoresist. (See. FIG. 5).

Second, the photoresist is not located on a gate structure, but is instead, located on an ONO layer over which a gate structure is deposited subsequent to the implantation and oxidation processes, and as such, a thickness of the photoresist cannot vary across the gate structure and terminate at a periphery of the gate structure. Furthermore, the photoresist is ultimately removed, and thus, the final MOS device as taught by Park will not include the photoresist layer. (Column 7, lines 9-12).

Accordingly, Park fails to disclose each and every element of independent Claims 15, 17-18, 21-24 and 27-28.

II. Rejection of Claims 16 and 26 under 35 U.S.C. §103

These claims are rejected under 35 U.S.C. §103 as unpatentable over Park. However, as discussed above, Park fails to teach several of the elements of Claim 15 on which Claims 16 and 26 depend. Furthermore, however, there is no suggestion of arriving at such a structure. The implantation of the p-type region is carefully conducted to form the p-type regions at the edges of the ONO layer to achieve a high density device. (Column 3, lines 49-64). The resulting structure is the one illustrated in FIG. 5, and as explained above, it does not result in an implant that follows at least a portion of the contour of the photoresist. Given the explicit teaching in Park how to achieve this implant, one who is skilled in the art would not be motivated to arrive at the implant as presently recited in these dependent claims without using the present application as a blueprint. Additionally, there is no teaching or suggestion of forming the photoresist on the gate structure because given the implicit teachings of Park, the gate is formed subsequent to the implantation and removal of the photoresist, and there is also no motivation for one skilled in the art to conduct the implants subsequent to the gate formation without turning to non-obvious modifications of the process steps.

Furthermore, given the fact that Park teaches removing the photoresist, one who is skilled in the art would not be motivated to leave the photoresist on the gate upon completing the MOS device.

Therefore, Park fails to teach or suggest each and every element of Claims 16 and 26, and as such, fails to establish a *prima facie* case of obviousness regarding these claims. Accordingly, the Applicants request that the Examiner withdraw this §103 rejection.

III. Rejection of Claims 19 and 29-30 under 35 U.S.C. §103

These claims are rejected under 35 U.S.C. §103 as unpatentable over Park in view of U.S. Patent No. 5,776,811 to Wang, et al. ("Wang"). Wang fails to cure the deficient teachings of Park inasmuch as there is no teaching or suggestion, whatsoever, in Wang of a hardmask as presently recited in Claim 15, on which Claims 19 and 29-30 depend.

Therefore, the combination of Park and Wang fails to teach or suggest each and every element of Claims 19 and 29-30, and as such, fails to establish a *prima facie* case of obviousness regarding these claims. Accordingly, the Applicants request that the Examiner withdraw this §103 rejection.

IV. Conclusion

In view of the foregoing remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 15-19 and 21-30.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application.

Respectfully submitted,

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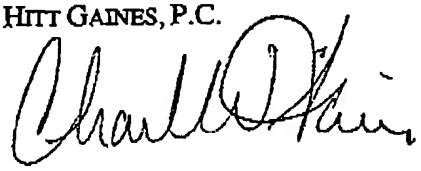

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